

IN THE CLAIMS

The following is a complete listing of the claims, and replaces all earlier versions and listings.

1. - 33. (Canceled)

34. (New) A print system comprising a print control apparatus for generating a print job, a plurality of image forming apparatuses for printing data based on the print job and a management server for managing information of the plurality of image forming apparatuses, which are connected to each other via a network, the print system comprising:

a search request transmission unit, provided in the print control apparatus, configured to transmit to the management server a search request to search the plurality of image forming apparatuses for one image forming apparatus to print data based on a print job, the search request including a necessary condition for the image forming apparatus;

a selection unit, provided in the management server, configured to select the image forming apparatus from among the plurality of image forming apparatuses based on the search request transmitted by the search request transmission unit;

an informing unit, provided in the management server, configured to inform the print control apparatus of an encryption key which can be decrypted only by the image forming apparatus selected by the selection unit and of an address of the selected image forming apparatus;

an image forming apparatus information obtaining unit, provided in the print control apparatus, configured to obtain the encryption key and the address informed by the informing unit;

a first encryption unit, provided in the print control apparatus, configured to encrypt print data using the encryption key obtained by the image forming apparatus information obtaining unit;

a management server information obtaining unit, provided in the print control apparatus, configured to obtain an encryption key which can be decrypted only by the management server;

a second encryption unit, provided in the print control apparatus, configured to encrypt the print data using the encryption key obtained by the management server information obtaining unit;

a print job transmission unit, provided in the print control apparatus, configured to transmit the print job including the print data encrypted by the first encryption unit to the address obtained by the image forming apparatus information obtaining unit, and transmit the print job including the print data encrypted by the second encryption unit to the management server;

a decryption unit, provided in the management server, configured to decrypt the encrypted print data included in the print job transmitted by the print job transmission unit;

a third encryption unit, provided in the management server, configured to encrypt the print data decrypted by the decryption unit using the encryption key of the image forming apparatus selected by the selection unit; and

a print data transmission unit, provided in the management server, configured to transmit the print data encrypted by the third encryption unit to the image forming apparatus selected by the selection unit.

35. (New) A print system according to claim 34, wherein the print control apparatus further comprises:

a feature amount computation unit configured to compute a feature amount from the print data;

a digital signature generation unit configured to generate a digital signature by encrypting the feature amount computed by the feature amount computation unit using a private key of the print control apparatus; and

a key encryption unit configured to encrypt the private key of the print control apparatus using the encryption key obtained by the image forming apparatus information obtaining unit,

wherein the print job transmission unit transmits the print job including the digital signature generated by the digital signature generation unit and the private key of the print control apparatus encrypted by the key encryption unit, and

wherein the image forming apparatus comprises:

a key decryption unit configured to decrypt the encrypted private key of the print control apparatus included in the print job using a private key of the image forming apparatus; and

a feature amount obtaining unit configured to obtain a feature amount of the print data by decrypting the digital signature included in the print job using said key of the print control apparatus.

36. (New) A print system according to claim 34, wherein the address of the image forming apparatus comprises a port or a uniform resource identifier (URI) for printing.

37. (New) A print system according to claim 34, wherein the selection unit selects candidates of the image forming apparatus based on the search request transmitted by the search request transmission unit,

wherein the management server further comprises a second informing unit configured to inform the print control apparatus of information on the candidates of the image forming apparatus selected by the selection unit, and

wherein the print control apparatus further comprises a third informing unit configured to inform the management server of the information on one of the candidates informed by the second informing unit, and the informing unit informs the print control apparatus of the encryption key which can be decrypted only by the image forming apparatus designated by the information informed by the third informing unit and of the address of the designated image forming apparatus.

38. (New) A print system according to claim 34, wherein the search request includes information designating a location and a performance of the image forming apparatus.

39. (New) A print method for a print system comprising a print control apparatus for generating a print job, a plurality of image forming apparatuses for printing data based on the print job and a management server for managing information of the plurality of image forming apparatuses, which are connected to each other via a network, the print method comprising:

a search request transmission step, used by the print control apparatus, of transmitting to the management server a search request to search the plurality of image forming apparatuses for one image forming apparatus to print data based on a print job, the search request including a necessary condition for the image forming apparatus;

a selection step, used by the management server, of selecting the image forming apparatus from among the plurality of image forming apparatuses based on the search request transmitted in the search request transmission step;

an informing step, used by the management server, of informing the print control apparatus of an encryption key which can be decrypted only by the image forming apparatus selected in the selection step and of an address of the selected image forming apparatus;

an image forming apparatus information obtaining step, used by the print control apparatus, of obtaining the encryption key and the address informed by the informing step;

a first encryption step, used by the print control apparatus, of encrypting print data using the encryption key obtained in the image forming apparatus information obtaining step;

a management server information obtaining step, used by the print control apparatus, of obtaining an encryption key which can be decrypted only by the management server;

a second encryption step, used by the print control apparatus, of encrypting the print data using the encryption key obtained in the management server information obtaining step;

a print job transmission step, used by the print control apparatus, of transmitting the print job including the print data encrypted in the first encryption step to the address obtained in the image forming apparatus information obtaining step, and transmitting the print job including the print data encrypted by the second encryption step to the management server;

a decryption step, used by the management server, of decrypting the encrypted print data included in the print job transmitted in the print job transmission step;

a third encryption step, used by the management server, of encrypting the print data decrypted in the decryption step using the encryption key of the image forming apparatus selected in the selection step; and

a print data transmission step, used by the management server, configured to transmit the print data encrypted in the third encryption step to the image forming apparatus selected in the selection step.

40. (New) A print method according to claim 34, wherein the steps used by print control apparatus further comprise:

a feature amount computation step, of computing a feature amount from the print data;

a digital signature generation step, of generating a digital signature by encrypting the feature amount computed by the feature amount computation unit using a private key of the print control apparatus; and

a key encryption step, of encrypting the private key of the print control apparatus using the encryption key obtained in the image forming apparatus information obtaining step,

wherein the print job transmission step includes transmitting the print job including the digital signature generated in the digital signature generation step and the private key of the print control apparatus encrypted in the key encryption step, and

wherein the steps used by the image forming apparatus comprise:

a key decryption step, of decrypting the encrypted private key of the print control apparatus included in the print job using a private key of the image forming apparatus; and

a feature amount obtaining step, of obtaining a feature amount of the print data by decrypting the digital signature included in the print job using the key of the print control apparatus.

41. (New) A print method according to claim 34, wherein the address of the image forming apparatus comprises a port or a uniform resource identifier (URI) for printing.

42. (New) A print method according to claim 34, wherein the selection step includes selecting candidates of the image forming apparatus based on the search request transmitted in the search request transmission step,

wherein the steps used by the management server further comprise a second informing step, of informing the print control apparatus of information on the candidates of the image forming apparatus selected in the selection step, and

wherein the steps used by the print control apparatus further comprise a third informing step, of informing the management server of the information on one of the candidates informed in the second informing step, and the informing step includes informing the print control apparatus of the encryption key which can be decrypted only by the image forming apparatus designated by the information informed in the third informing step and of the address of the designated image forming apparatus.

43. (New) A print method according to claim 34, wherein the search request includes information designating a location and a performance of the image forming apparatus.